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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/774,841	02/09/2004	Frank Jansen	M03A210	9767
20411	7590	09/07/2006	EXAMINER	
THE BOC GROUP, INC. 575 MOUNTAIN AVENUE MURRAY HILL, NJ 07974-2064			MOORE, KARLA A	
			ART UNIT	PAPER NUMBER
			1763	
DATE MAILED: 09/07/2006				

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

10/774,841

Applicant(s)

JANSEN, FRANK

Examiner

Karla Moore

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 19 June 2006.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-9, 11-15 and 17-20 is/are pending in the application.
- 4a) Of the above claim(s) 1-7 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 8, 9, 11-15 and 17-20 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 9 February 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

## Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

## Attachment(s)

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                       | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

## DETAILED ACTION

### ***Claim Rejections - 35 USC § 102***

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 8, 13, 15 and 18-19 rejected under 35 U.S.C. 102(b) as being anticipated by U.S. Patent No. 2002/0043216 A1 to Hwang et al.

3. Hwang et al. disclose a method for preparing a coated substrate, comprising: providing an atomic layer deposition arrangement comprising an evacuable chamber (304), at least two atomic layer deposition sources (308a to 308d) within the chamber, wherein each atomic layer deposition chamber source is isolated from the remainder of the chamber (using partition wall, 310), conveying the substrate to the first of the at least one deposition source, exposing the substrate to the at least one deposition source, conveying the substrate to the next atomic layer deposition source, and exposing the substrate to said next atomic layer deposition source. See paragraphs 44-45 and 50. A substrate source chamber (302) is further provided.

4. With respect to claim 13, the first atomic layer deposition source is a source of trimethylaluminum (paragraph 46).

5. With respect to claim 15, the first atomic layer deposition source is a source of trimethylaluminum and the next atomic layer deposition source is an oxidizing agent/water vapor (paragraph 46).

6. With respect to claims 18 and 19, an inert gas/argon is introduced into the evacuable chamber (paragraph 46).

***Claim Rejections - 35 USC § 103***

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

8. Claim 9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hwang et al. as applied to claims 8, 13, 15 and 18-19 in view of U.S. Patent No. 5,300,189 to Kokaku et al.

9. Hwang et al. disclose the method substantially as claimed and as described above. Additionally, Hwang et al. further disclose that processing speed is of concern.

10. However, Hwang et al. fail to teach rolling a rotatable drum to carry a substrate in an evacuable chamber with a plurality of zones for forming a multilayered film and by rotating a first rotatable drum for conveying a substrate into the evacuable chamber and by rotating a second rotatable drum for receiving a substrate exiting from the evacuable chamber.

11. Kokaku et al. teach rolling a rotatable drum to carry a substrate in an evacuable chamber with a plurality of zones for forming a multilayered film and by rotating a first rotatable drum for conveying a substrate into the evacuable chamber and by rotating a second rotatable drum for receiving a substrate exiting from the evacuable chamber for the purpose of forming a film with high efficiency without uselessly complicating construction of the processing apparatus (Figure 3, abstract and column 5, rows 60 through column 6, row 1).

12. It would have been obvious to one of ordinary skill in the art to have provided a rotatable drum to carry a substrate in an evacuable chamber with a plurality of zones for forming a multilayered film and by rotating a first rotatable drum for conveying a substrate into the evacuable chamber and by rotating a second rotatable drum for receiving a substrate exiting from the evacuable chamber for the purpose of forming a film with high efficiency without uselessly complicating construction of the processing apparatus

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in Hwang et al. in order to form a film with high efficiency without uselessly complicating construction of the processing apparatus as taught by Kokaku et al.

13. Claims 11-12 and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hwang et al. as applied to claims 8, 13, 15 and 18-19 in view of U.S. Patent Publication No. 2004/0194691 to George et al.

14. Hwang et al. disclose the invention substantially as claimed and as described above.

15. However, Hwang et al. fail to teach using an ALD method for forming a barrier coating layer on a polymer substrate which has a thickness of 400 angstroms to 50 angstroms.

16. George et al. teach using an ALD method to form a barrier coating layer with a thickness of 400 angstroms to 50 angstroms on a polymer substrate, such as a polyamide, for the purpose of imparting desirable properties to the polymer substrate (paragraphs 17 and 53-54).

17. It would have been obvious to one of ordinary skill in the art at the time the Applicant's invention was made to have provided an ALD method to form a barrier coating layer on a polymer substrate with a thickness of 400 angstroms to 50 angstroms in Hwang et al. in order to impart desirable properties to a polymer substrate as taught by George et al.

18. Claim 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hwang et al. as applied to claims 8, 13, 15 and 18-19 in view of U.S. Patent Publication No. 2003/0207032 to Ahn et al.

19. Hwang et al. disclose the invention substantially as claimed and as described above.

20. However, Hwang et al. fail to teach the oxidizing agent selected from the group of oxygen, nitrous oxide and ozone.

21. Ahn et al. disclose use of oxygen, nitrous oxide and ozone as oxidizing agents along with trimethylaluminum in an ALD process for producing a coating of aluminum oxide for the purpose of forming a highly uniform ultra-thin layer (abstract, paragraphs 5 and 30).

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22. It would have been obvious to one of ordinary skill in the art at the time the Applicant's invention was made to have provided oxygen, nitrous oxide or ozone as an oxidizing agent in Hwang et al. in order to form a highly uniform ultra-thin layer as taught by Ahn et al.

23. Claims 17 is rejected under 35 U.S.C. 103(a) as being unpatentable over Hwang et al. as applied to claims 8, 13, 15 and 18-19 in view of U.S. Patent No. 5,300,189 to Kokaku et al. and U.S. Patent Publication No. 2004/0194691 to George et al.

24. Hwang et al. disclose the method substantially as claimed and as described above. Additionally, Hwang et al. further disclose that processing speed is of concern.

25. However, Hwang et al. fail to teach rolling a rotatable drum to carry a substrate in an evacuable chamber with a plurality of zones for forming a multilayered film and by rotating a first rotatable drum for conveying a substrate into the evacuable chamber and by rotating a second rotatable drum for receiving a substrate exiting from the evacuable chamber.

26. Kokaku et al. teach rolling a rotatable drum to carry a substrate in an evacuable chamber with a plurality of zones for forming a multilayered film and by rotating a first rotatable drum for conveying a substrate into the evacuable chamber and by rotating a second rotatable drum for receiving a substrate exiting from the evacuable chamber for the purpose of forming a film with high efficiency without uselessly complicating construction of the processing apparatus (Figure 3, abstract and column 5, rows 60 through column 6, row 1).

27. It would have been obvious to one of ordinary skill in the art to have provided a rotatable drum to carry a substrate in an evacuable chamber with a plurality of zones for forming a multilayered film and by rotating a first rotatable drum for conveying a substrate into the evacuable chamber and by rotating a second rotatable drum for receiving a substrate exiting from the evacuable chamber for the purpose of forming a film with high efficiency without uselessly complicating construction of the processing apparatus in Hwang et al. in order to form a film with high efficiency without uselessly complicating construction of the processing apparatus as taught by Kokaku et al.

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28. Hwang et al. and Kokaku et al. disclose the invention substantially as claimed and as described above.

29. However, Hwang et al. and Kokaku et al. fail to teach using an ALD method for forming a barrier coating layer on a polymer substrate which has a thickness of 400 angstroms to 50 angstroms.

30. George et al. teach using an ALD method to form a barrier coating layer with a thickness of 400 angstroms to 50 angstroms on a polymer substrate, such as a polyamide, for the purpose of imparting desirable properties to the polymer substrate (paragraphs 17 and 53-54).

31. It would have been obvious to one of ordinary skill in the art at the time the Applicant's invention was made to have provided an ALD method to form a barrier coating layer on a polymer substrate with a thickness of 400 angstroms to 50 angstroms in Hwang et al. and Kokaku et al. in order to impart desirable properties to a polymer substrate as taught by George et al.

#### ***Response to Arguments***

33. Applicant's arguments filed 19 June 2006 have been fully considered but they are not persuasive.

34. As previously pointed out in the previous office action, Hwang et al. teaches that either the substrate can be conveyed or the deposition sources can be conveyed. See paragraph 50.

35. In response to Applicant's argument that there is no suggestion to combine the references, the Examiner recognizes that obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either in the references themselves or in the knowledge generally available to one of ordinary skill in the art. See *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988) and *In re Jones*, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992). In this case, Kokaku discloses an alternate and non-complicated construction for processing a substrate receiving a surface treatment. Both disclosures are commonly concerned with surface processing of substrates. It is not necessary that Kokaku disclose all of the features of Applicant's claimed invention in addition to Hwang, as the references are relied upon in combination, not individually.

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36. In response to Applicant's argument that providing the drum as disclosed in Kokaku in Hwang would not produce the present invention, Examiner notes the test for obviousness is not whether the features of a secondary reference may be bodily incorporated into the structure of the primary reference; nor is it that the claimed invention must be expressly suggested in any one or all of the references. Rather, the test is what the combined teachings of the references would have suggested to those of ordinary skill in the art. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981). As described in the above paragraph, Kokaku describes alternate means for conveying a substrate during processing.

### **Conclusion**

37. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.


Any inquiry concerning this communication or earlier communications from the examiner should be directed to Karla Moore whose telephone number is 571.272.1440. The examiner can normally be reached on Monday-Friday, 9:00 am-6:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Parviz Hassanzadeh can be reached on 571.272.1435. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.



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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Karla Moore  
Primary Examiner  
Art Unit 1763  
1 September 2006